FACT SHEET FOR NPDES PERMIT WA 0001546
FACILITY NAME TransAlta Centralia Generation LLC

June 2010

PURPOSE of this Fact Sheet

This fact sheet explains and documents the decisions the Department of Ecology (Ecology) made in drafting the proposed National Pollutant Discharge Elimination System (NPDES) permit for TransAlta Centralia Generation, LLC (TCG).

The Environmental Protection Agency (EPA) developed the NPDES permitting program as a tool to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters." EPA delegated to Ecology the power and duty to write, issue, and enforce NPDES permits within Washington State. Both state and federal laws require any industrial facility to obtain a permit before discharging waste or chemicals to a water body.

An NPDES permit limits the types and amounts of pollutants the facility may discharge. Those limits are based either on (1) the pollution control or wastewater treatment technology available to the industry, or on (2) the receiving water's customary beneficial uses. This fact sheet complies with Section 173-220-060 of the Washington Administrative Code (WAC), which requires Ecology to prepare a draft permit *and accompanying fact sheet* for public evaluation before issuing an NPDES permit.

PUBLIC ROLE in the Permit

Ecology makes the draft permit and fact sheet available for public review and comment at least 30 days before issuing the final permit to the facility operator (WAC 173-220-050). Copies of the fact sheet and draft permit for TCG, NPDES permit WA001546 are available for public review and comment from June 9, 2010, until the close of business July 8, 2010. For more details on preparing and filing comments about these documents, please see **Appendix A - Public Involvement**.

Before publishing the draft NPDES permit, TCG, reviewed it for factual accuracy. Ecology corrected any errors or omissions about the facility's location, product type or production rate, discharges or receiving water, or its history.

After the public comment period closes, Ecology will summarize substantive comments and our responses to them. Ecology will include our summary and responses to comments to this Fact Sheet as **Appendix D Response to Comments**, and publish it when issuing the final NPDES permit. Ecology will not revise the rest of the fact sheet, but the full document will become part of the legal history contained in the facility's permit file.

Aziz Mahar prepared the permit and this fact sheet.

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INTRODUCTION

The Federal Clean Water Act (FCWA, 1972, and later amendments in 1977, 1981, and 1987) established water quality goals for the navigable (surface) waters of the United States. One mechanism for achieving the goals of the Clean Water Act is the National Pollutant Discharge Elimination System of permits (NPDES permits), administered by the federal Environmental Protection Agency (EPA). The EPA authorized the state of Washington to manage the NPDES permit program in our state. Our state legislature accepted the delegation and assigned the power and duty for conducting NPDES permitting and enforcement to the Department of Ecology (Ecology). The legislature defined Ecology's authority and obligations for the wastewater discharge permit program in 90.48 RCW (Revised Code of Washington).

Ecology adopted rules describing how it exercises its authority:

- Procedures Ecology follows for issuing NPDES permits (chapter 173-220 WAC)
- Water quality criteria for surface waters (chapter 173-201A WAC) and for ground waters (chapter 173-200 WAC)
- Sediment management standards (chapter 173-204 WAC)
- Submission of Plans and Reports for Construction of Wastewater Facilities (chapter 173-240 WAC)

These rules require any industrial facility operator to obtain an NPDES permit before discharging wastewater to state waters. They also help define the basis for limits on each discharge and for performance requirements imposed by the permit.

Under the NPDES permit program and in response to a complete and accepted permit application Ecology must prepare a draft permit and accompanying fact sheet, and make them available for public review before final issuance. Ecology must also publish an announcement (public notice) telling people where they can read the draft permit, and where to send their comments, during a period of thirty days (WAC 173-220-050). (See **Appendix A--Public Involvement** for more detail about the Public Notice and Comment procedures). After the Public Comment Period ends, Ecology may make changes to the draft NPDES permit in response to comments. Ecology will summarize the responses to comments and any changes to the permit in **Appendix D.**

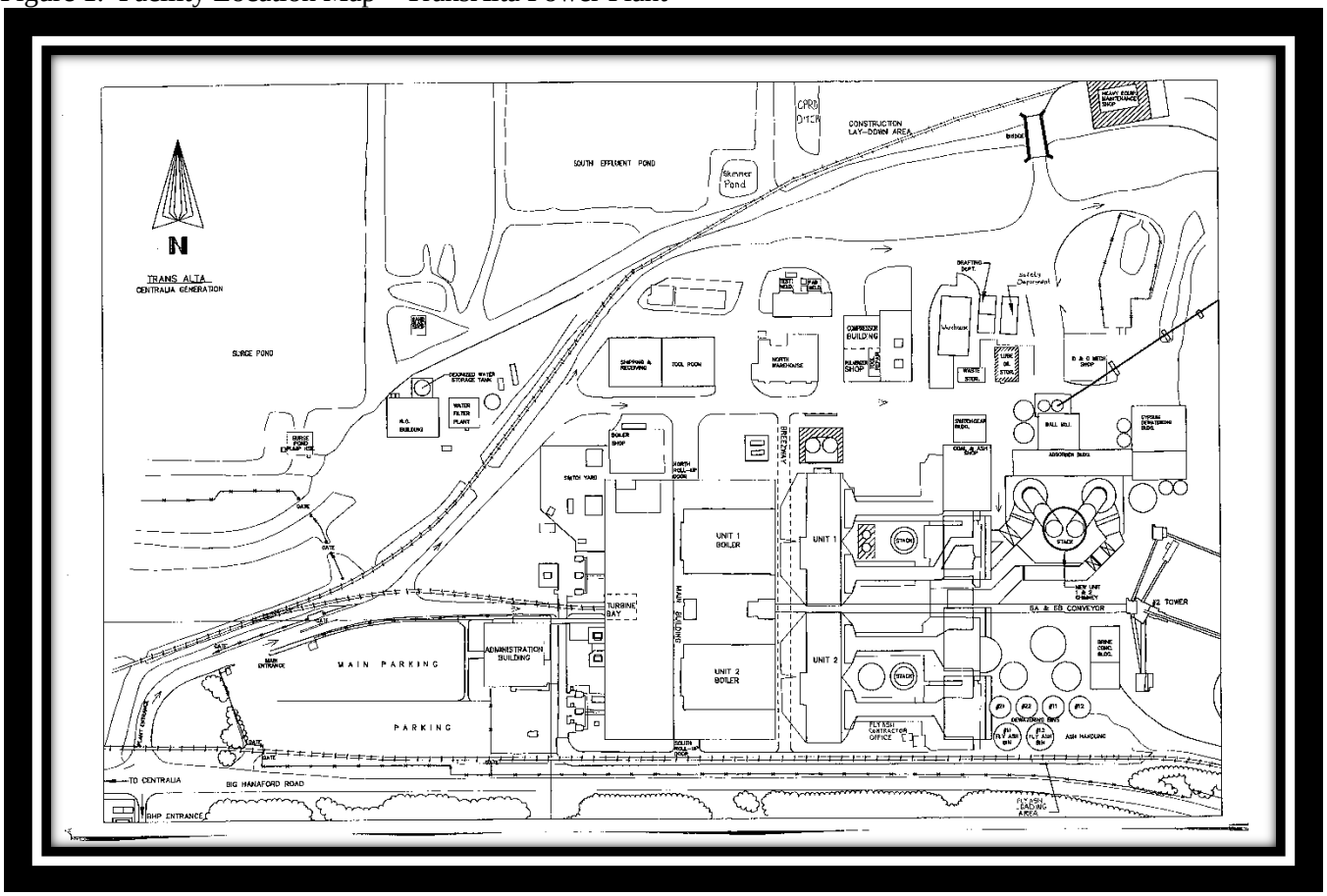
I. BACKGROUND INFORMATION

Table 1 - General Facility Information

Applicant:	TransAlta Centralia Generation, LLC
Facility Name and Address:	TransAlta Centralia Generation, LLC 913 Big Hanford Road Centralia, WA98531
Type of Treatment:	**Outfall 001:** Coal Pile Runoff - Settling Pond Stormwater Runoff - Settling Pond Cooling Tower Blowdown – Settling Pond

	Outfall 002 (Sanitary Effluent)– Activated Sludge, Oxidation Ditch and Disinfection
SIC Code	4911 – Electric Power Generation
Discharge Location:	Hanaford Creek

Figure 1. Facility Location Map – TransAlta Power Plant



A. Facility Description

History

The TCG, a wholly owned subsidiary of TransAlta Corporation, operates a coal-fired electricity generating power plant located approximately six miles northeast of Centralia, Washington. TCG operations consist of two, 702.5 Megawatt turbine units that are fueled by coal supplied from out of state coal providers located in the Powder River Basin on the Montana/Wyoming border. In addition, TCG operates a 250 Megawatt natural gas power plant on the same site utilizing four gas turbine engines and a single heat recovery steam generator. The TCG has operated continuously since 1971 with no significant alteration. Ecology and EPA classify it as a NPDES major facility.

Electricity demand typically peaks in the winter and the plant occasionally shutdowns in the spring and summer when electricity demand is low. TCG uses these periods to maintain the facility. When operating conditions are ideal, the facility generates electricity continuously for months at a time. TCG employs approximately 325 employees. Operations personnel work two 12-hour shifts, other personnel

(administrative) work 8-hour shifts on regular Monday through Friday business hours, and maintenance personnel work 10-hour shifts Monday through Thursday.

Industrial Process

TCG generates electrical power by burning coal mined in Montana and Wyoming. TCG utilizes its two boiler units to generate 1,405,000 kilowatts of electrical power per hour, typically totaling between 7,000,000 and 12,000,000 megawatt hours per year. TCG uses approximately 26,000,000 gallons of water per day when operating. Approximately 17,250,000 gallons per day evaporates as the water cools the steam-electric generating process. TCG uses approximately 2,000,000 gallons per day for air pollution control in the current Wet Flue Gas Desulfurization (WFGD) (also referred as scrubber) operations.

TCG draws water for this operation from the Skookumchuck River and the process water discharges to the Hanaford Creek. Domestic sewage is also generated on the TransAlta site both at the TCG and the TransAlta Centralia Mining (TCM) facility adjacent to the power plant. Table 2 summarizes wastewater generation.

Table 2 - Wastewater Generation

Source	Approximate Discharge, MGD
Sanitary Effluent	0.01
Scrubber wastewater	0.04
Coal pile stormwater runoff	0.5
Plant stormwater runoff	0.4
Cooling tower blowdown	2.4

Water Treatment

TCG owns and operates its own water treatment plant. Intake water is drawn from the Skookumchuck River at a rate of 26 MGD. The facility pumps intake water to the surge pond (Figure 3), then treats it with filtration, deionization, and reverse osmosis and then uses it for all power plant and potable water demands.

Wastewater Treatment

A. General Description

TCG treats the coal pile stormwater runoff (CPRO) using flocculation and settling. Sanitary effluent is treated by the activated sludge process. TCG treats its stormwater runoff and cooling tower blowdown in lagoons in the winter; however, during the summer, it treats these wastewater streams by discharging the water to pond 3E and/or reusing it in the Wet Flue Gas Desulfurization (WFGD) (Figure 3) scrubbers.

Figure 2. Wastewater Treatment System Network

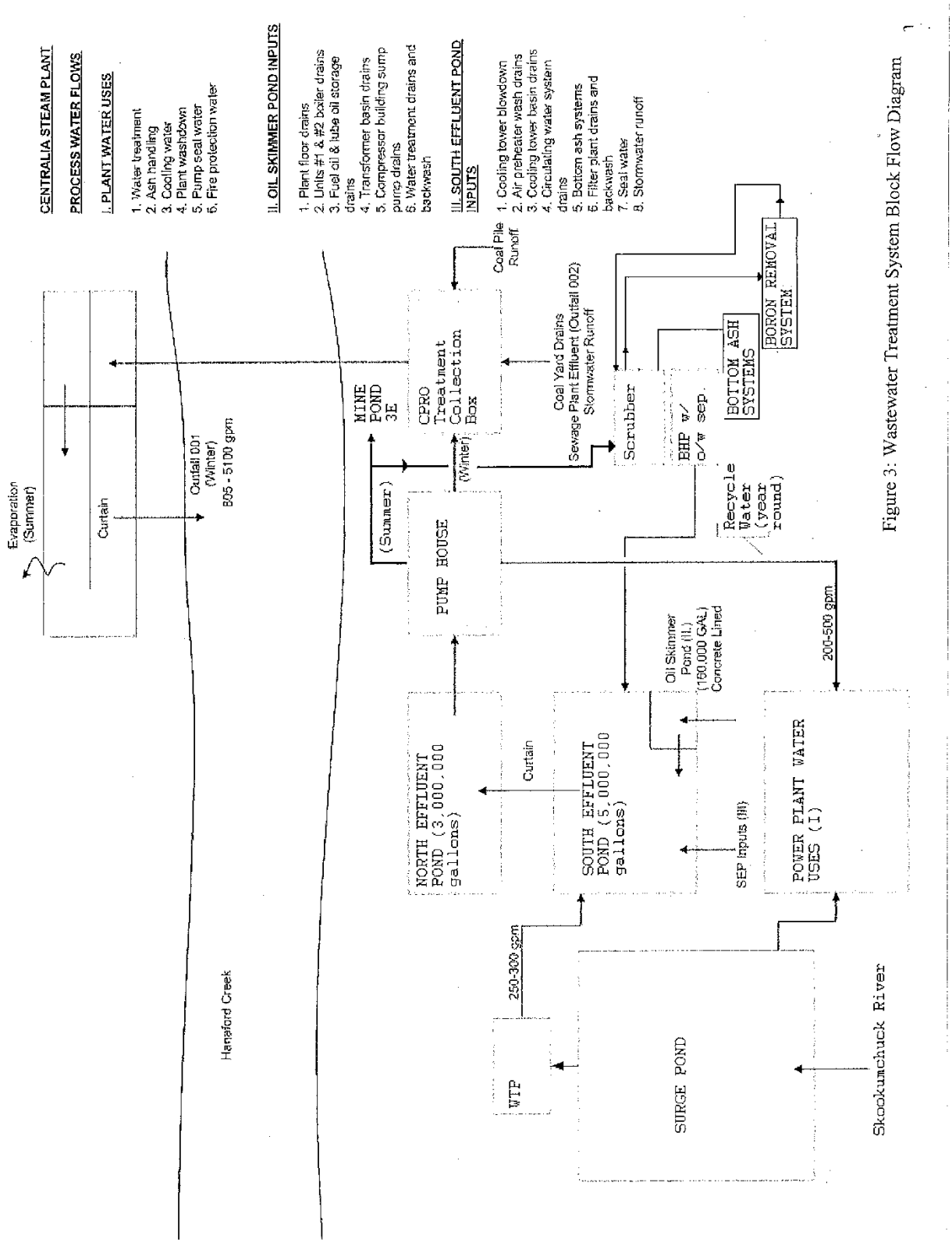


Figure 3: Wastewater Treatment System Block Flow Diagram

B. Wastewater Treatment Procedure

1. Oil Skimmer Pond

TCG uses this 130,000-gallon pond to contain any floating oil or other floating debris from potentially oil contaminated areas. The areas that drain to this pond include:

- Plant floor drains
- Transformer basin drains
- Fuel oil and lube oil storage basin drains
- Compressor building sump pump drains
- Demineralizer neutralization tank drain
- Turbine bay sumps

2. South Effluent Pond

The following areas drain to this 5,000,000-gallon pond.

- Circulating water cooling tower blowdown
- Units 1 and 2 boiler drains
- BHP facilities
- Air pre-heater wash drains
- Cooling tower basin drains
- Circulating water system drains
- Bottom ash system surge tank overflows
- Ultra-pure water treatment plant

3. North Effluent Pond

This pond has a nominal capacity of 3,000,000 gallons. Water passes through a sub-surface culvert from the south effluent pond to the north effluent pond. Due to the fact that this culvert is below the normal water level, and is further protected by a floating boom, all floating material is effectively trapped in the south pond. In addition, the pond's detention time allows most of the suspended solids adequate time to settle out in the south pond. TCG reuses the North Effluent Pond water for:

- The plant fire protection system – the primary sources of fire system water are the north effluent pond wastewater pumps and the wastewater booster pumps (which are located on the south side of unit 2).

- Bottom ash system make-up.
- Fly ash bin yard drain wash water.
- Dilution water for the CPRO chemicals.
- Wash-down water.

In the event wastewater levels exceed safe pond capacity, provision is made to dispose of excess wastewater by pumping to the coal pile runoff (CPRO) treatment ponds.

4. Wastewater Pumping Systems

TCG uses the following pumping systems to direct wastewater:

- North Effluent Pond wastewater pumps – Located just outside (south) of the north effluent pond pump house
- Two wastewater pumps rated at 3,000 gallons per minute (gpm) and provide wastewater for most plant processes
- One north effluent pond irrigation pump rated at 3,000 gpm and used to pump wastewater to the wastewater system

5. Sewage (Domestic wastewater) Treatment Train

TCG operates a small, packaged, activated sludge sewage treatment plant designed for a maximum flow rate of 36,000 gallons per day. This extended aeration, activated sludge; secondary treatment plant handles normal plant sewage from the TCG, Big Hanaford Project (BHP) and the TransAlta Centralia Mining (TCM) facilities. This process consists of four major components:

- Raw sewage pump house
- Treatment plant
- Oxidation pond
- Chlorination contact chamber

Raw sewage flows by gravity into the sump under the floor of the pump house and activates one of the two lift pumps. Sewage is pumped through a splitter gate which allows approximately 20 percent of the flow to enter the treatment plant and recycles 80 percent back into the sump. This allows a relatively steady flow to enter the plant rather than a series of heavy, or "shock loads".

From the splitter gate, the sewage flows into the aeration basin where diffused air is introduced at timed intervals producing O_2 level high enough to sustain aerobic bacteria present in the sewage.

From the aeration basin, the sewage flows into the clarifier where the heavy floc formed in the aeration basin readily settle to the bottom and the clear, "treated", supernatant discharges to the oxidation pond.

The settled floc, or sludge, is then returned by a sump system from the bottom of clarifier back to the aeration basin where it re-mixes with incoming sewage.

The oxidation pond serves a two-fold purpose. Its approximate ten day retention period allows the O_2 level of the treated sewage to increase to a level more acceptable for discharge into a receiving stream. In addition, it provides a buffer zone for any occasional plant upsets that may allow heavier solid materials to escape from the clarifier.

TCG treats the effluent from the oxidation pond with sodium hypochlorite to remove any possible disease-carrying bacteria before ultimate discharge into Hanaford Creek. Retention time in the chlorine contact chamber is approximately 6 to 8 hours. Effluent from the chlorine contact chamber enters the CPRO ditch and flows to the series of CPRO ponds before final discharge into Hanaford Creek.

6. CPRO Operation

TCG contains runoff from the coal storage area within a system of dikes and directs it through a series of ponds for treatment to remove suspended solids before discharge into Hanaford Creek. In addition to water coming directly from the coal pile, sewage treatment plant effluent and yard drains from other areas within the plant drain to this outfall. The primary treatment method for the CPRO system consists of flocculation by the addition of aluminum sulfate and polymer.

Aluminum sulfate is pumped directly from the bulk storage tank to the culvert inlet next to the CPRO pump house. Laboratory personnel determine and set the correct pump stroke. Anionic or Cationic polymer is added at the mixing box located between the CPRO pump house and Hanaford Creek. This treatment makes larger and heavier floc particles, which then settles in the CPRO pond system.

7. Discharge to Mine Pond 3E

When the CPRO pond temperature rises due to ambient air temperatures, such that the facility cannot meet the Outfall 001 temperature requirements, it pumps this wastewater from the north effluent pond to Mine Pond 3E and/or the WFGD and conducts the applicable monitoring.

Solid Waste Management

Below is a listing and description of solid waste generated by TCG:

Recyclables

Scrap Steel –Steel is collected from around the site in specially marked "scrap steel" recycling bins and are then aggregated into large dumpsters. Due to maintenance activities, the amount of the scrap metal recycled annually varies significantly but can be as much as 174 tons recycled in 2007.

Office Paper/Cardboard – TCG recycles office paper and card boards in marked containers located in all office spaces and in the warehouse. Although estimated at over 75 percent recycled, vendor recycling this material does not supply TCG with a mass of the recycled materials.

Plastics and Metals - TCG has recently started recycling spent plastic (water bottles, etc) as well as aluminum cans. TCG has not started accounting for this material on a mass basis for tracking and reporting.

Tires – All tires are recycled through TCG's tire suppliers.

Other – Spent chemicals and oil and containers are all recycled with the product manufacturers. Many manufacturers hold a "deposit" for container which acts an incentive for recycling.

Standard Solid Waste Refuse

TCG aggressively pursues opportunities to re-use and recycle solid wastes. Many wastes still require off -site disposal and are wastes common to households, municipalities and businesses. They consist of packaging containers, non-recyclable plastic and rubber material etc. All solid wastes are collected within TCG physical boundary, where it collects and monitors all stormwater and wastewater for contaminants, and treats as necessary prior to discharge.

Sludge Disposal

Sludge disposal at TCG consists of three main types:

- Sewage treatment plant sludge
- CPRO sludge
- Effluent pond cleaning sludge

Sewage Treatment Plant Sludge

A local contractor disposes of the normal operational sludge and its volume averages 3,000 to 5,000 gallons per quarter. As needed, the facility performs a general sewage treatment plant cleaning.

CPRO Sludge Disposal

The facility currently disposes of the CPRO sediment by pumping it with a floating dredge and booster pumps to a dewatering pond on the east appendage of the coal pile.

Effluent Pond Cleaning

TCG uses the wastewater from the north effluent pond for various plant processes. The largest portion is used in ash handling systems. Overflow from the ash system returns to the south effluent pond. This constitutes the major source of the settable suspended solids in the effluent ponds. Another source of solids is silt from various yard drains. TCG periodically removes these solids using a floating dredge and dewaters the waste using the same method as for the CPRO sediment. The total volume of sediment handled varies, but it ranges from 5,000 to 10,000 cubic yards per year.

DISCHARGE OUTFALLS
This NPDES permit authorizes wastewater discharge through two outfalls (Outfalls 001 and 002).

Outfall 001 -The list below identifies the sources of discharge through outfall 001:

- Outfall 002 (domestic wastewater effluent)
- South and north effluent ponds
- Coal pile runoff

The discharge flows for the TCG are conveyed through various drains and pipe lines from the TCG facility to a series of settling ponds. The CPRO treatment ponds are the confluence of the north and the south pond system. The cooling tower blow down, coal pile runoff, site stormwater runoff and treated sanitary wastewater flows during the wet season operations. The CPRO ponds are divided by berms and curtains into eight cells. The final cell discharges to the monitoring station (parshall flume) and then Big Hanford Creek.

Outfall 002-TCG designed this internal outfall to monitor the quality of domestic waster (Sanitary sewage) system, with a rated capacity of 20,000 gallons per day (30-day average). The wastewater through this outfall combines with the outfall 001 discharge at the CPRO treatment collection box.

B. Permit Status

TCG submitted an application for permit renewal on January 27, 2009. Ecology accepted it as complete on February 3, 2009.

C. Summary of Compliance with Previous Permit Issued

Ecology staff last conducted a non- sampling compliance inspection on December 4, 2008.

TCG for the most part has complied with the effluent limits and permit conditions throughout the duration of the permit issued on June 30, 2005. There were a number of exceptions in which TCG failed to comply with the permit requirements. Ecology assessed facility compliance based on its review of the facility's Discharge Monitoring Reports (DMRs) and inspections conducted by Ecology. The permit violations are appended in appendix C of this fact sheet.

D. Wastewater Characterization

The concentration of pollutants in the discharge was reported in the NPDES application and in discharge monitoring reports. The tabulated data represents the quantity and quality of the effluent discharged during the time period of July 1, 2005, through February 2010. The following statistical analysis shows that the Permittee, for the most part, has remained within the permit limits.

Table 3: Outfall 001 discharge characteristics, Discharge to Hanaford Creek

Combined domestic and process wastewater discharge						
Parameter	**Minimum**	**Maximum**	**Average**	**Median**	**No. of data points**	**Permit limit, maximum**
Flow, MGD	0.56	8	3.57	3.3	39	12.12
Total Chlorine Residual, mg/L	0.00	0.87	0.095	0.04	39	0.20
Oil and Grease, mg/L	2	2.4	2.066	2	6	20
Total Suspended Solids, mg/L	1.5	36.7	7.143	4.8	39	100
Chromium, Total, mg/L	0.007	0.009	0.0074	0.007	5	0.2
Zinc, mg/L	0.001	0.02	0.008	0.006	5	1

Combined domestic and process wastewater discharge						
Parameter	**Minimum**	**Maximum**	**Average**	**Median**	**No. of data points**	**Permit limit, maximum**
Dissolved Oxygen, mg/L	8.25	13.7	10.61	10.60	39	8
Temperature, Background, ° C	3.95	18	9.65816	8.9	49	N/A
Turbidity, Background, NTU	1.3	50	12.09	9.32	54	N/A

Table 4- Domestic wastewater discharge characteristics

Outfall 002 – Domestic wastewater discharge						
Parameter	**Minimum**	**Maximum**	**Average**	**Median**	**No. of data points**	**Permit Limit (maximum)**
Flow, MGD	0.006	0.0251	0.0133	0.0130	56	0.036
BOD, mg/L	2	142	17.2	8	56	45
TSS, mg/L	0.4	36.8	11.4	10.2	56	45
Total Chlorine Residual, mg/L	0.5	3.5	1.425	1.45	45	2.0
Fecal Coliform #/100ml	0	336	41	4.5	56	400

E. Description of the Receiving Water

TCG discharges to Hanaford Creek. Other nearby point-sources outfalls include, TransAlta Centralia Mining and Limited Purpose Landfill discharges. Significant nearby non-point sources of pollutants are not known.

F. SEPA Compliance

Regulation exempts reissuance or modification of any wastewater discharge permit from the SEPA process as long as the permit contains conditions are no less stringent than state rules and regulations. The exemption applies only to existing discharges, not to new discharges.

II. PROPOSED PERMIT CONDITIONS

Federal and state regulations require that effluent limits in an NPDES permit must be either technology or water quality-based.

- Technology-based limits are based upon the treatment methods available to treat specific pollutants. Technology-based limits are set by the EPA and published as a regulation, or Ecology develops the limit on a case-by-case basis (40 CFR 125.3, and chapter 173-220 WAC).

- Water quality-based limits are calculated so that the effluent will comply with the Surface Water Quality Standards (chapter 173-201A WAC), Ground Water Standards (chapter 173-200 WAC),

Sediment Quality Standards (chapter 173-204 WAC) or the National Toxics Rule (40 CFR 131.36).

- Ecology must apply the most stringent of these limits to each parameter of concern. These limits are described below.

The limits in this permit reflect information received in the application and from supporting reports (engineering, hydrogeology, etc.). Ecology evaluated the permit application and determined the limits needed to comply with the rules adopted by the state of Washington. Ecology does not develop effluent limits for all reported pollutants. Some pollutants are not treatable at the concentrations reported, are not controllable at the source, are not listed in regulation, and do not have a reasonable potential to cause a water quality violation.

Nor does Ecology usually develop permit limits for pollutants that were not reported in the permit application but that may be present in the discharge. The permit does not authorize discharge of the non-reported pollutants. During the five-year permit term, the facility's effluent discharge conditions may change from those conditions reported in the permit application. The facility must notify Ecology, as described in 40 CFR 122.42(a), if significant changes occur in any constituent. Industries may be in violation of their permit until Ecology modifies the permit to reflect additional discharge of pollutants.

A. Design Criteria

According to WAC 173-220-150 (1)(g), neither flows nor waste loadings may exceed approved design criteria, however, Ecology does not have an engineering report that specifies the design criteria for the wastewater treatment plant at this facility.

B. Technology-Based Effluent Limits

The applicable federal code for this type of discharge (**outfall 001)** is 40 Code of Federal Regulations (CFR) 423. This code, 40 CFR 423, states the following:

"423.13 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this part must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

(a) There shall be no discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid.

(d)(1) The quantity of pollutants discharged in cooling tower blowdown shall not exceed the quantity determined by multiplying the flow of cooling tower blowdown times the concentration listed below:

Table 5- Cooling Tower Blowdown BAT Limits

Pollutant or pollutant property	*BAT effluent limitations*	
	Maximum concentration (mg/L)	*Average concentration (mg/L)*
Free available chlorine	*0.5*	*0.2*

Pollutant or pollutant property	*Maximum for any 1 day −(mg/L)*	*Average of daily values for 30 consecutive days shall not exceed =(mg/L)*
The 126 priority pollutants contained in chemicals added for cooling tower maintenance, except:	*(1)*	*(1)*
Chromium, total	*0.2*	*0.2*
Zinc, total	*1.0*	*1.0*

[1]No detectable amount.

(2) Neither free available chlorine nor total residual chlorine may be discharged from any unit for more than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator or State, if the State has NPDES permit issuing authority, that the units in a particular location cannot operate at or below this level of chlorination.

(3) At the permitting authority's discretion, instead of the monitoring specified in 40 CFR 122.11(b) compliance with the limitations for the 126 priority pollutants in paragraph (d)(1) of this section may be determined by engineering calculations which demonstrate that the regulated pollutants are not detectable in the final discharge by the analytical methods in 40 CFR part 136."

Outfall 002

TCG has also domestic wastewater treatment plant and the applicable Code of Federal Regulation (CFR) and Washington Administrative Code (WAC) are the following:

Technology-Based Effluent Limits

Federal and state regulations define technology-based effluent limits for municipal wastewater treatment plants. These effluent limits are given in 40 CFR Part 133 (federal) and in chapter 173-221 WAC. These regulations are performance standards that constitute all known, available, and reasonable methods of prevention, control, and treatment (AKART) for municipal wastewater. Chapter 173-221 WAC lists the following technology-based limits for pH, fecal coliform, BOD_5, and TSS:

Table 6:Technology-based Limits for Outfall 002.

Parameter	**Limit**
pH	The pH must measure within the range of 6.0 to 9.0 standard units.
Fecal Coliform Bacteria	Monthly Geometric Mean = 200 organisms/100 mL Weekly Geometric Mean = 400 organisms/100 mL
BOD_5 (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L

Parameter	Limit
TSS (concentration)	Average Monthly Limit is the most stringent of the following: - 30 mg/L - may not exceed fifteen percent (15%) of the average influent concentration Average Weekly Limit = 45 mg/L
Chlorine	Average Monthly Limit = 2.0 mg/L Maximum Daily Limit = 2.0 mg/L

The existing permit has a chlorine limit of 2.0 mg/L for outfall 002 and the facility is able to comply with it. The proposed permit includes the same limit. This chlorine limit is higher than the technology based and water quality based limits due to the fact that at this outfall 002, the Permittee is not directly discharging their wastewater to the surface water. This outfall 002 is discharging to outfall 001 which does go to the surface water. The chlorine limit will change at outfall 001 to a stricter limit of 0.2 mg/L.

The technology-based mass limits are based on WAC 173-220-130(3)(b) and 173-221-030(11)(b).

Monthly effluent mass loadings for both BOD5 and TSS (lbs/day) = maximum monthly design flow (0.036MGD) x Concentration limit (30 mg/L) x 8.34 (conversion factor) = mass limit **9.0 lb/day.**

The weekly average effluent mass loading = 1.5 x monthly loading = **13.5 lbs/day.**

C. Surface Water Quality-Based Effluent Limits

The Washington State Surface Water Quality Standards (chapter 173-201A WAC) were designed to protect existing water quality and preserve the beneficial uses of Washington's surface waters. Waste discharge permits must include conditions that ensure the discharge will meet established surface water quality standards (WAC 173-201A-510). Water quality-based effluent limits may be based on an individual waste load allocation or on a waste load allocation developed during a basin wide total maximum daily loading study (TMDL).

Numerical Criteria for the Protection of Aquatic Life and Recreation

Numerical water quality criteria are published in the Water Quality Standards for Surface Waters (chapter 173-201A WAC). They specify the levels of pollutants allowed in receiving water to protect aquatic life and recreation in and on the water. Ecology uses numerical criteria along with chemical and physical data for the wastewater and receiving water to derive the effluent limits in the discharge permit. When surface water quality-based limits are more stringent or potentially more stringent than technology-based limits, the discharge must meet the water quality-based limits.

Numerical Criteria for the Protection of Human Health

The U.S. EPA has published 91 numeric water quality criteria for the protection of human health that are applicable to dischargers in Washington State (40 CFR 131.36). These criteria are designed to protect humans from exposure to pollutants linked to cancer and other diseases, based on consuming fish and shellfish and drinking contaminated surface waters. The Water Quality Standards also include radionuclide criteria to protect humans from the effects of radioactive substances.

Narrative Criteria

Narrative water quality criteria (e.g., WAC 173-201A-240(1); 2006) limit the toxic, radioactive, or other deleterious material concentrations that the facility may discharge to levels below those which have the potential to:

- Adversely affect designated water uses.
- Cause acute or chronic toxicity to biota.
- Impair aesthetic values.
- Adversely affect human health.

Narrative criteria protect the specific designated uses of all fresh waters (WAC 173-201A-200, 2006) and of all marine waters (WAC 173-201A-210,; 2006) in the State of Washington.

Antidegradation

The purpose of Washington's Antidegradation Policy (WAC 173-201A-300-330; 2006) is to:

- Restore and maintain the highest possible quality of the surface waters of Washington.
- Describe situations under which water quality may be lowered from its current condition.
- Apply to human activities that are likely to have an impact on the water quality of surface water.
- Ensure that all human activities likely to contribute to a lowering of water quality, at a minimum, apply all known, available, and reasonable methods of prevention, control, and treatment (AKART).
- Apply three Tiers of protection (described below) for surface waters of the state.

  Tier I ensures existing and designated uses are maintained and protected and applies to all waters and all sources of pollutions. Tier II ensures that waters of a higher quality than the criteria assigned are not degraded unless such lowering of water quality is necessary and in the overriding public interest. Tier II applies only to a specific list of polluting activities. Tier III prevents the degradation of waters formally listed as "outstanding resource waters," and applies to all sources of pollution.

A facility must prepare a Tier II analysis when all three of the following conditions are met:

- The facility is planning a new or expanded action.
- Ecology regulates or authorizes the action.
- The action has the potential to cause measurable degradation to existing water quality at the edge of a chronic mixing zone.

This facility must meet Tier I requirements.

- Dischargers must maintain and protect existing and designated uses. Ecology may not allow any degradation that will interfere with, or become injurious to, existing or designated uses, except as provided for in chapter 173-201A WAC.

- For waters that do not meet assigned criteria, or protect existing or designated uses, Ecology will take appropriate and definitive steps to bring the water quality back into compliance with the water quality standards.

- Whenever the natural conditions of a water body are of a lower quality than the assigned criteria, the natural conditions constitute the water quality criteria. Where water quality criteria are not met because of natural conditions, human actions are not allowed to further lower the water quality, except where explicitly allowed in this chapter.

Ecology's analysis described in this fact sheet demonstrates that the existing and designated uses of the receiving water will be protected under the conditions of the proposed permit.

Mixing Zones

A mixing zone is the defined area in the receiving water surrounding the discharge port(s), where wastewater mixes with receiving water. Within mixing zones the pollutant concentrations may exceed water quality numeric criteria, so long as the diluting wastewater doesn't interfere with designated uses of the receiving water body (e.g., recreation, water supply, and aquatic life and wildlife habitat, etc.). The pollutant concentrations outside of the mixing zones must meet water quality numeric criteria.

State and federal rules allow mixing zones because the concentrations and effects of most pollutants diminish rapidly after discharge, due to dilution. Ecology defines mixing zone sizes to limit the amount of time any exposure to the end-of-pipe discharge could harm water quality, plants, or fish.

The state's water quality standards allow Ecology to authorize mixing zones for the facility's permitted wastewater discharges only if those discharges already receive all known, available, and reasonable methods of prevention, control and treatment (AKART). Mixing zones typically require compliance with water quality criteria within a specified distance from the point of discharge; and use no more than 25 percent of the available width of the water body for dilution. Ecology uses modeling to estimate the amount of mixing within the mixing zone and determine the potential for violating the water quality standards at the edge of the mixing zone and derive any necessary effluent limits. Steady-state models are the most frequently used tools for conducting mixing zone analyses. Ecology chooses values for each effluent and for receiving water variables that correspond to the time period when the most critical condition is likely to occur (see Ecology's Permit Writer's Manual). Each critical condition parameter (by itself) has a low probability of occurrence and the resulting dilution factor is conservative. The term "reasonable worst-case" applies to these values.

The mixing zone analysis produces a numerical value called a dilution factor (DF). A dilution factor represents the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. For example, a dilution factor of 10 means the effluent comprises 10 percent by volume and the receiving water comprises 90 percent of the total volume at the boundary of the mixing zone. Ecology uses dilution factors with the water quality criteria to calculate reasonable potentials and effluent limits. Water quality standards include both aquatic life-based criteria and human health-based criteria. The former are applied at both the acute and chronic mixing zone boundaries; the latter are applied only at the chronic boundary. The concentration of pollutants at the boundaries of any of these mixing zones may not exceed the numerical criteria for that zone.

Each aquatic life **acute** criterion is based on the assumption that organisms are not exposed to that concentration for more than one-hour and more often than one exposure in three years. Each aquatic life **chronic** criterion is based on the assumption that organisms are not exposed to that concentration for more than four consecutive days and more often than once in three years.

The two types of human health-based water quality criteria distinguish between those pollutants linked to non-cancer effects (non-carcinogenic) and those linked to cancer effects (carcinogenic). The human health-based water quality criteria incorporate several exposure and risk assumptions. These assumptions include:

- A 70-year lifetime of daily exposures.
- An ingestion rate for fish or shellfish measured in kg/day.
- An ingestion rate of two liters/day for drinking water
- A one-in-one-million cancer risk for carcinogenic chemicals.

The water quality standards impose certain conditions before allowing the discharger a mixing zone.

D. Designated Uses and Surface Water Quality Criteria

Applicable designated uses and surface water quality criteria are defined in chapter 173-201A WAC. In addition, the U.S. EPA set human health criteria for toxic pollutants (40 CFR 131.36). Criteria applicable to this facility's discharge are summarized below in **Table 7**.

- Aquatic Life Uses are designated based on the presence of, or the intent to provide protection for, the key uses. All indigenous fish and non-fish aquatic species must be protected in waters of the state in addition to the key species. The Aquatic Life Uses for this receiving water are identified below.

Table: 7 Aquatic Life Uses & Associated Criteria

Core Summer Salmonid Habitat	
Temperature Criteria – Highest 7DAD MAX	16°C (60.8°F)
Dissolved Oxygen Criteria	9.5 mg/L
Turbidity Criteria	• 5 NTU over background when the background is 50 NTU or less; or • A 10 percent increase in turbidity when the background turbidity is more than 50 NTU
Total Dissolved Gas Criteria	Total dissolved gas shall not exceed 110 percent of saturation at any point of sample collection
pH Criteria	pH shall be within the range of 6.5 to 8.5, with a human-caused variation within the above range of less than 0.2 units

- The recreational uses are extraordinary primary contact recreation, primary contact recreation, and secondary contact recreation. The recreational uses for this receiving water are identified below.

Table 8 Recreational Uses & Associated Criteria

Recreational use	Criteria
Primary Contact Recreation	Fecal coliform organism levels must not exceed a geometric mean value of 100 colonies /100 mL, with not more than 10 percent of all samples (or any single sample when less than ten sample points exist) obtained for calculating the geometric mean value exceeding 200 colonies /100 mL

- The **water supply use**s are domestic, agricultural, industrial, and stock watering.

- The **miscellaneous fresh water use**s are wildlife habitat, harvesting, commerce and navigation, boating, and aesthetics.

E. Evaluation of Surface Water Quality -Based Effluent Limits for Numeric Criteria

Pollutants in an effluent may affect the aquatic environment near the point of discharge (near field) or at a considerable distance from the point of discharge (far field). Toxic pollutants, for example, are near-field pollutants--their adverse effects diminish rapidly with mixing in the receiving water. Conversely, a pollutant such as biological oxygen demand (BOD) is a far-field pollutant whose adverse effect occurs away from the discharge even after dilution has occurred. Thus, the method of calculating surface water quality-based effluent limits varies with the point at which the pollutant has its maximum effect.

With technology-based controls (AKART), the limits are higher than the water quality criteria limits for chromium and chlorine. Given an analysis of the past five years of data, this showed that if there would have been water quality based limits; the Permittee would have exceeded those limits for these two pollutants. In this proposed NPDES permit, Ecology requires the Permittee to continue to have the technology based limits for this permit cycle but within five years they must submit a plan and report to meet the water quality and technology based limits (see S11. special condition of this permit).

Temperature--The state temperature standards (WAC 173-201A-200-210 and 600-612) include multiple elements:

- Annual summer maximum threshold criteria (June 15 to September 15)
- Supplemental spawning and rearing season criteria (September 15 to June 15)
- Incremental warming restrictions
- Protections against acute effects

Ecology evaluates each criterion independently to determine reasonable potential and derive permit limits.

Annual summer maximum and supplementary spawning/rearing criteria

Each water body has an annual maximum temperature criterion [WAC 173-201A-200(1) (c), 210(1)(c), and Table 602]. These threshold criteria (e.g., 12, 16, 17.5, 20°C) protect specific categories of aquatic life by controlling the effect of human actions on summer temperatures.

Some waters have an additional threshold criterion to protect the spawning and incubation of salmonids (9°C for char and 13°C for salmon and trout) [WAC 173-201A-602, Table 602]. These criteria apply during specific date-windows.

The threshold criteria apply at the edge of the chronic mixing zone. Criteria for most fresh waters are expressed as the highest 7-Day average of daily maximum temperature (7-DADMax). The 7-DADMax temperature is the arithmetic average of seven consecutive measures of daily maximum temperatures. Criteria for marine waters and some fresh waters are expressed as the highest 1-Day annual maximum temperature (1-DMax).

Incremental warming criteria

The water quality standards limit the amount of warming human sources can cause under specific situations [WAC 173-201A-200(1)(c)(i)-(ii), 210(1)(c)(i)-(ii)]. The incremental warming criteria apply at the edge of the chronic mixing zone.

At locations and times when background temperatures are cooler than the assigned threshold criterion, point sources are permitted to warm the water by only a defined increment. These increments are permitted only to the extent doing so does not cause temperatures to exceed either the annual maximum or supplemental spawning criteria.

At locations and times when a threshold criterion is being exceeded due to natural conditions, all human sources, considered cumulatively, must not warm the water more than 0.3°C above the naturally warm condition.

When Ecology has not yet completed a TMDL, our policy allows each point source to warm water at the edge of the chronic mixing zone by 0.3°C. This is true regardless of the background temperature and even if doing so would cause the temperature at the edge of a standard mixing zone to exceed the numeric threshold criteria. Allowing a 0.3°C warming for each point source is reasonable and protective where the dilution factor is based on 25 percent or less of the critical flow. This is because the fully mixed effect on temperature will only be a fraction of the 0.3°C cumulative allowance (0.075°C or less) for all human sources combined.

Temperature Acute Effects

Instantaneous lethality to passing fish: The upper 99th percentile daily maximum effluent temperature must not exceed 33°C; unless a dilution analysis indicates ambient temperatures will not exceed 33°C 2-seconds after discharge.

General lethality and migration blockage: Measurable (0.3°C) increases in temperature at the edge of a chronic mixing zone are not allowed when the receiving water temperature exceeds either a 1DMax of 23°C or a 7DADMax of 22°C.

Lethality to incubating fish: Human actions must not cause a measurable (0.3°C) warming above 17.5°C at locations where eggs are incubating.

Turbidity--The permit requires turbidity monitoring to assess compliance with the water quality criteria for turbidity (see Table 8) because of potential fluctuations in turbidity of both the receiving water and the effluent.

Toxic Pollutants--Federal regulations (40 CFR 122.44) require Ecology to place limits in NPDES permits on toxic chemicals in an effluent whenever there is a reasonable potential for those chemicals to exceed the surface water quality criteria. Ecology does not exempt facilities with technology-based effluent limits from meeting the surface water quality standards. Generally federal discharge limits are more stringent than surface water quality standards, except zinc, chromium and total residual chlorine, for this type of discharge.

40 CFR 423 requires that the Permittee must achieve non- detectable levels for the priority pollutants (priority pollutant less chromium and zinc) for the cooling tower blow down discharge before this water is discharged to the surface water (Hanaford Creek). This NPDES permit requires the Permittee to conduct and submit a priority pollutant analysis report once per permit cycle. Ecology received an electronic copy of the priority pollutant analysis report on April 13, 2010. This report showed that the Permittee has met the non detectable requirement for all priority pollutants except for the following parameters: Arsenic, Copper, Lead, Nickel, Selenium and Zinc.

Ecology conducted a reasonable potential analysis (See **Appendix** C) on chlorine, chromium, arsenic and selenium parameters to determine whether it would be necessary to require effluent limits in this permit. The reasonable potential analysis showed that there is no reasonable potential that the Permittee would exceed the water quality criteria for arsenic. But this analysis did show that there was a reasonable potential that the Permittee would exceed the water quality criteria for chlorine, chromium and selenium.

There were some parameters such as copper, lead, nickel and zinc which Ecology was unable to determine the reasonable potential that the Permittee would exceed the water quality criteria because of the lack of the data. The new proposed permit will require the Permittee to collect hardness data for the five year permit cycle. This additional data will assist Ecology in calculating the water quality criteria and reasonable potential analysis for the future.

F. Whole Effluent Toxicity

Acute

WET testing conducted during effluent characterization showed no reasonable potential for effluent discharges to cause receiving water acute toxicity. The proposed permit does not impose an acute WET limit. TCG must retest the effluent before submitting an application for permit renewal. In addition:

- If this facility makes process or material changes which, in Ecology's opinion, increase the potential for effluent toxicity, then Ecology may (in a regulatory order, by permit modification, or in the permit renewal) require the facility to conduct additional effluent characterization.

- If WET testing conducted for submittal with a permit application fails to meet the performance standards in WAC 173-205-020, Ecology will assume that effluent toxicity has increased. TCG may demonstrate to Ecology that effluent toxicity has not increased, by performing additional WET testing after the process or material changes have been made.

Chronic

WET testing conducted during effluent characterization showed no reasonable potential for effluent discharges to cause receiving water chronic toxicity. The proposed permit does not impose a chronic WET limit. TCG must retest the effluent before submitting an application for permit renewal. In addition:

- If this facility makes process or material changes which, in Ecology's opinion, increase the potential for effluent toxicity, then Ecology may (in a regulatory order, by permit modification, or in the permit renewal) require the facility to conduct additional effluent characterization

- If WET testing conducted for submittal with a permit application fails to meet the performance standards in WAC 173-205-020, Ecology will assume that effluent toxicity has increased. TCG may demonstrate to Ecology that effluent toxicity has not increased by performing additional WET testing after the process or material changes have been made.

G. Human Health

Washington's water quality standards include 91 numeric human health-based criteria that Ecology must consider when writing NPDES permits. These criteria were established in 1992 by the U.S. EPA in its National Toxics Rule (40 CFR 131.36). The National Toxics Rule allows states to use mixing zones to evaluate whether discharges comply with human health criteria.

Ecology determined the effluent may contain chemicals of concern posing a risk to human health. Ecology determined this because data or process information indicates regulated chemicals occur in the discharge.

H. Sediment Quality

The aquatic sediment standards (WAC 173-204) protect aquatic biota and human health. Under these standards Ecology may require a facility to evaluate the potential for its discharge to cause a violation of sediment standards (WAC 173-204-400). You can obtain additional information about sediments at the Aquatic Lands Cleanup Unit website. http://www.ecy.wa.gov/programs/tcp/smu/sediment.html
Ecology could not determine at this time the potential for this discharge to cause a violation of sediment quality standards. If in the future Ecology determines a potential for violation of the Sediment Quality Standards, it will issue an order requiring TCG to demonstrate either:

- The point of discharge is not an area of deposition or,

- Toxics do not accumulate in the sediments even though the point of discharge is a depositional area.

I. Ground Water Quality Limits

The Ground Water Quality Standards, (chapter 173-200 WAC), protect beneficial uses of ground water. Permits issued by Ecology must not allow violations of those standards (WAC 173-200-100).

TCG does not discharge wastewater to ground and therefore Ecology imposed no permit limits to protect ground water.

J. Comparison of Effluent Limits with Limits of the Previous Permit Issued on June 30, 2005

Table 9 Comparison of Effluent Limits

	Basis of Limit	**Previous Effluent Limits: Outfall # 001**		**Proposed Effluent Limits: Outfall # 001**	
Parameter		**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Maximum Daily**

	Basis of Limit	**Previous Effluent Limits: Outfall # 001**		**Proposed Effluent Limits: Outfall # 001**	
Parameter		**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Maximum Daily**
Flow	Technology	6.36	12.12	6.36	12.12
Total Suspended Solids, mg/L	Technology	30	100	30	100
Oil and Grease, mg/L	Technology	15	20	15	20
Chromium, mg/L	Technology	0.20	0.20	0.20	0.20
Zinc, mg/L	Technology	1.0	1.0	1.0	1.0
Temperature, ^{o}C	Water Quality	18° C when background is less than 18° C. Background plus 0.3° C when background is greater than 18° C. no increase more than 28° C divided by background temperature plus 7.	18° C when background is less than 18° C. Background plus 0.3° C when background is greater than 18° C. no increase more than 28° C divided by background temperature plus 7.	16° C when background is less than 16° C. Background plus 0.3° C when background is greater than 16° C. No increase more than 28° C divided by background temperature plus 7.	16° C when background is less than 16° C. Background plus 0.3° C when background is greater than 16° C. No increase more than 28° C divided by background temperature plus 7.
Oil and Grease, visual		No visible sheen	No visible sheen	No visible sheen	No visible sheen
Dissolved Oxygen, mg/L	Water Quality	Minimum, 8 mg/L	N/A	Minimum, 9.5 mg/L	N/A
pH	Technology	6.0 – 10.0		6.0 - 10.0	
Total Chlorine Residual, mg/L	Technology	0.20	0.20	0.20	0.50

	Basis of Limit	**Previous Effluent Limits: Outfall # 001**		**Proposed Effluent Limits: Outfall # 001**	
Parameter		**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Maximum Daily**
Turbidity (NTU)	Water Quality	5 NTU over background when background is less than 50 NTU. Maximum 10% increase over background when background is over 50 NTU.	5 NTU over background when background is less than 50 NTU. Maximum 10% increase over background when background is over 50 NTU.	5 NTU over background when background is less than 50 NTU. Maximum 10% increase over background when background is over 50 NTU.	5 NTU over background when background is less than 50 NTU. Maximum 10% increase over background when background is over 50 NTU.
Priority Pollutants less chromium and zinc, µg/L	Technology	Zero	Zero	Non-Detectable amount	Non-Detectable amount
	Basis of Limit	**Previous Effluent Limits: Outfall # 002**		**Proposed Effluent Limits: Outfall # 002**	
Parameter		**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Average weekly**
Flow, MGD	Technology	0.020	0.036	None	None
Total Suspended Solids	Technology	30 mg/L	45 mg/L	30 mg/L, 9 lbs/day	45 mg/L, 13.5 lbs/day
$BOD_{5,}$	Technology	30 mg/L	45 mg/L	30 mg/L, 9 lbs/day	45 mg/L, 13.5 lbs/day
Parameter		**Average Monthly**	**Maximum Daily**	**Average Monthly**	**Maximum Daily**
Fecal Coliform #/100mL	Technology	200	400	200	400
Total Chlorine residual, mg/L	Technology	2.0	2.0	2.0	2.0

IV MONITORING REQUIREMENTS

Ecology requires monitoring, recording, and reporting (WAC 173-220-210 and 40 CFR 122.41) to verify that the treatment process is functioning correctly and that the discharge complies with the permit's effluent limits.

The monitoring schedule is detailed in the proposed permit under Condition S.2. Specified monitoring frequencies take into account the quantity and variability of the discharge, the treatment method, past compliance, significance of pollutants, and cost of monitoring.

A. Lab Accreditation

Ecology requires that facilities must use a laboratory registered or accredited under the provisions of chapter 173-50 WAC, *Accreditation of Environmental Laboratories* to prepare all monitoring data (with the exception of certain parameters).

V OTHER PERMIT CONDITIONS

A. Reporting and Recordkeeping

Ecology based permit condition S3. on our authority to specify any appropriate reporting and recordkeeping requirements to prevent and control waste discharges (WAC 173-220-210).

B. Non Routine and Unanticipated Discharges

Occasionally, this facility may generate wastewater which was not characterized in the permit application because it is not a routine discharge and was not anticipated at the time of application. These wastes typically consist of waters used to pressure-test storage tanks or fire water systems or of leaks from drinking water systems.

The permit authorizes non-routine and unanticipated discharges under certain conditions. The facility must characterize these waste waters for pollutants and examine the opportunities for reuse. Depending on the nature and extent of pollutants in this wastewater and on any opportunities for reuse, Ecology may:

- Authorize the facility to discharge the wastewater.
- Require the facility to treat the wastewater.
- Require the facility to reuse the wastewater.

C. Spill Plan

This facility stores a quantity of chemicals on-site that have the potential to cause water pollution if accidentally released. Ecology can require a facility to develop best management plans to prevent this accidental release [section 402(a)(1) of the Federal Water Pollution Control Act (FWPCA) and RCW 90.48.080].

TCG developed a plan for preventing the accidental release of pollutants to state waters and for minimizing damages if such a spill occurs. The proposed permit requires the facility to update this plan and submit it to Ecology.

D. Solid Waste Control Plan

TCG could cause pollution of the waters of the state through inappropriate disposal of solid waste or through the release of leachate from solid waste. This proposed permit requires this facility to update the approved solid waste control plan designed to prevent solid waste from causing pollution of waters of the state. The updated plan must be submitted to Ecology for approval (RCW 90.48.080).

E. Treatment System Operating Plan

Ecology requires industries to take all reasonable steps to properly operate and maintain their wastewater treatment system in accordance with state and federal regulations (40 CFR 122.41(e) and WAC 173-220-150 (1)(g)). The facility has prepared and submitted an operation and maintenance manual as required by state regulation for the construction of wastewater treatment facilities (WAC 173-240-150). Implementation of the procedures in the Treatment System Operating Plan ensures the facility's compliance with the terms and limits in the permit.

F. General Conditions

Ecology bases the standardized General Conditions on state and federal law and regulations. They are included in all individual industrial NPDES permits issued by Ecology.

VI. PERMIT ISSUANCE PROCEDURES

A. Permit Modifications

Ecology may modify this permit to impose numerical limits, if necessary to comply with water quality standards for surface waters, with sediment quality standards, or with water quality standards for ground waters, after obtaining new information from sources such as inspections, effluent monitoring, outfall studies, and effluent mixing studies. Ecology may also modify this permit to comply with new or amended state or federal regulations.

B. Proposed Permit Issuance

This proposed permit includes all statutory requirements for Ecology to authorize a wastewater discharge. The permit includes limits and conditions to protect human health and aquatic life, and the beneficial uses of waters of the state of Washington. Ecology proposes to issue this permit for a term of **five** years.

VII. REFERENCES FOR TEXT AND APPENDICES

Environmental Protection Agency (EPA)

1991. Technical Support Document for Water Quality-based Toxics Control. EPA/505/2-90-001.

1988. Technical Guidance on Supplementary Stream Design Conditions for Steady State Modeling. USEPA Office of Water, Washington, D.C.

1985. Water Quality Assessment: A Screening Procedure for Toxic and Conventional Pollutants in Surface and Ground Water. EPA/600/6-85/002a.

1983. Water Quality Standards Handbook. USEPA Office of Water, Washington, D.C.

Tsivoglou, E.C., and J.R. Wallace.

1972. Characterization of Stream Reaeration Capacity. EPA-R3-72-012. (Cited in EPA 1985 op.cit.)

Washington State Department of Ecology.

1994. Permit Writer's Manual. Publication Number 92-109

Washington State Department of Ecology.

2007. Focus Sheet on Solid Waste Control Plan, Developing a Solid Waste Control Plan for Industrial Wastewater Discharge Permittees. Publication Number 07-10-024

Washington State Department of Ecology.

Laws and Regulations(http://www.ecy.wa.gov/laws-rules/index.html)

Permit and Wastewater Related Information (http://www.ecy.wa.gov/programs/wq/wastewater/index.html

Wright, R.M., and A.J. McDonnell.

1979. In-stream Deoxygenation Rate Prediction. Journal Environmental Engineering Division, ASCE. 105(EE2). (Cited in EPA 1985 op.cit.)

APPENDIX A--PUBLIC INVOLVEMENT INFORMATION

Ecology proposes to reissue a permit to TransAlta Centralia Generation, LLC. The permit prescribes operating conditions and wastewater discharge limits. This fact sheet describes the facility and Ecology's reasons for requiring permit conditions.

Ecology placed a Public Notice of Application on June 4,2009, and June 11, 2009, in the *Daily Chronicle* to inform the public about the submitted application and to invite comment on the reissuance of this permit.

Ecology will place a Public Notice on June 9, 2010, in the *Daily Chronicle* to inform the public and to invite comment on the proposed reissuance of this National Pollutant Discharge Elimination System permit as drafted.

The Notice –

- Tells where copies of the draft Permit and Fact Sheet are available for public evaluation (a local public library, the closest Regional or Field Office, posted on our website.).
- Offers to provide the documents in an alternate format to accommodate special needs.
- Asks people to tell us how well the proposed permit would protect the receiving water.
- Invites people to suggest fairer conditions, limits, and requirements for the permit.
- Invites comments on Ecology's determination of compliance with antidegradation rules.
- Urges people to submit their comments, in writing, before the end of the comment period
- Tells how to request a public hearing about the proposed NPDES Permit.
- Explains the next step(s) in the permitting process.

Ecology has published a document entitled **Frequently Asked Questions about Effective Public Commenting** which is available on our website at http://www.ecy.wa.gov/biblio/0307023.html.

You may obtain further information from Ecology by telephone, 360-407-6280, or by writing to the permit writer at the address listed below.

Water Quality Permit Coordinator
Department of Ecology
Southwest Regional Office
P.O. Box 47775
Olympia, WA 98504-7775

APPENDIX B--GLOSSARY

1-DMax or **1-day maximum temperature**--The highest water temperature reached on any given day. This measure can be obtained using calibrated maximum/minimum thermometers or continuous monitoring probes having sampling intervals of thirty minutes or less.

7-DADMax or **7-day average of the daily maximum temperatures**--The arithmetic average of seven consecutive measures of daily maximum temperatures. The 7-DADMax for any individual day is calculated by averaging that day's daily maximum temperature with the daily maximum temperatures of the three days prior and the three days after that date.

Acute Toxicity--The lethal effect of a compound on an organism that occurs in a short period of time, usually 48 to 96 hours.

AKART--The acronym for "all known, available, and reasonable methods of prevention, control and treatment." AKART is a technology-based approach to limiting pollutants from wastewater discharges which requires an engineering judgment and an economic judgment. AKART must be applied to all wastes and contaminants prior to entry into waters of the state in accordance with RCW 90.48.010 and 520, WAC 173-200-030(2)(c)(ii), and WAC 173-216-110(1)(a).

Ambient Water Quality--The existing environmental condition of the water in a receiving water body.

Ammonia--Ammonia is produced by the breakdown of nitrogenous materials in wastewater. Ammonia is toxic to aquatic organisms, exerts an oxygen demand, and contributes to eutrophication. It also increases the amount of chlorine needed to disinfect wastewater.

Annual Average Design Flow (AADF)--The average of the daily flow volumes anticipated to occur over a calendar year.

Average Monthly Discharge Limit--The average of the measured values obtained over a calendar month's time.

Best Management Practices (BMPs)--Schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural and/or managerial practices to prevent or reduce the pollution of waters of the State. BMPs include treatment systems, operating procedures, and practices to control: plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. BMPs may be further categorized as operational, source control, erosion and sediment control, and treatment BMPs.

BOD_5--Determining the Biochemical Oxygen Demand of an effluent is an indirect way of measuring the quantity of organic material present in an effluent that is utilized by bacteria. The BOD_5 is used in modeling to measure the reduction of dissolved oxygen in receiving waters after effluent is discharged. Stress caused by reduced dissolved oxygen levels makes organisms less competitive and less able to sustain their species in the aquatic environment. Although BOD is not a specific compound, it is defined as a conventional pollutant under the federal Clean Water Act.

Bypass--The intentional diversion of waste streams from any portion of a treatment facility.

Chlorine--Chlorine is used to disinfect wastewaters of pathogens harmful to human health. It is also extremely toxic to aquatic life.

Chronic Toxicity--The effect of a compound on an organism over a relatively long time, often 1/10 of an organism's lifespan or more. Chronic toxicity can measure survival, reproduction or growth rates, or other parameters to measure the toxic effects of a compound or combination of compounds.

Clean Water Act (CWA)--The Federal Water Pollution Control Act enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, 97-117; USC 1251 et seq.

Compliance Inspection - Without Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations.

Compliance Inspection - With Sampling--A site visit for the purpose of determining the compliance of a facility with the terms and conditions of its permit or with applicable statutes and regulations. In addition it includes as a minimum, sampling and analysis for all parameters with limits in the permit to ascertain compliance with those limits; and, for municipal facilities, sampling of influent to ascertain compliance with the 85 percent removal requirement. Ecology may conduct additional sampling.

Composite Sample--A mixture of grab samples collected at the same sampling point at different times, formed either by continuous sampling or by mixing discrete samples. May be "time-composite"(collected at constant time intervals) or "flow-proportional" (collected either as a constant sample volume at time intervals proportional to stream flow, or collected by increasing the volume of each aliquot as the flow increased while maintaining a constant time interval between the aliquots.

Construction Activity--Clearing, grading, excavation and any other activity which disturbs the surface of the land. Such activities may include road building, construction of residential houses, office buildings, or industrial buildings, and demolition activity.

Continuous Monitoring--Uninterrupted, unless otherwise noted in the permit.

Critical Condition--The time during which the combination of receiving water and waste discharge conditions have the highest potential for causing toxicity in the receiving water environment. This situation usually occurs when the flow within a water body is low, thus, its ability to dilute effluent is reduced.

Detection Limit--See Method Detection Level.

Dilution Factor (DF)--A measure of the amount of mixing of effluent and receiving water that occurs at the boundary of the mixing zone. Expressed as the inverse of the percent effluent fraction e.g., a dilution factor of 10 means the effluent comprises 10 percent by volume and the receiving water 90 percent.

Engineering Report--A document which thoroughly examines the engineering and administrative aspects of a particular domestic or industrial wastewater facility. The report must contain the appropriate information required in WAC 173-240-060 or 173-240-130.

Fecal Coliform Bacteria--Fecal coliform bacteria are used as indicators of pathogenic bacteria in the effluent that are harmful to humans. Pathogenic bacteria in wastewater discharges are controlled by disinfecting the wastewater. The presence of high numbers of fecal coliform bacteria in a water body can indicate the recent release of untreated wastewater and/or the presence of animal feces.

Grab Sample--A single sample or measurement taken at a specific time or over as short a period of time as is feasible.

Industrial Wastewater--Water or liquid-carried waste from industrial or commercial processes, as distinct from domestic wastewater. These wastes may result from any process or activity of industry, manufacture, trade or business, from the development of any natural resource, or from animal operations such as feed lots, poultry houses, or dairies. The term includes contaminated storm water and, also, leachate from solid waste facilities.

Major Facility--A facility discharging to surface water with an EPA rating score of > 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Maximum Daily Discharge Limit--The highest allowable daily discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. The daily discharge is calculated as the average measurement of the pollutant over the day.

Maximum Day Design Flow (MDDF)--The largest volume of flow anticipated to occur during a one-day period, expressed as a daily average.

Maximum Month Design Flow (MMDF)--The largest volume of flow anticipated to occur during a continuous 30-day period, expressed as a daily average.

Maximum Week Design Flow (MWDF)--The largest volume of flow anticipated to occur during a continuous 7-day period, expressed as a daily average.

Method Detection Level (MDL)--The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the pollutant concentration is above zero and is determined from analysis of a sample in a given matrix containing the pollutant.

Minor Facility--A facility discharging to surface water with an EPA rating score of < 80 points based on such factors as flow volume, toxic pollutant potential, and public health impact.

Mixing Zone--An area that surrounds an effluent discharge within which water quality criteria may be exceeded. The area of the authorized mixing zone is specified in a facility's permit and follows procedures outlined in state regulations (chapter 173-201A WAC).

National Pollutant Discharge Elimination System (NPDES)--The NPDES (Section 402 of the Clean Water Act) is the Federal wastewater permitting system for discharges to navigable waters of the United States. Many states, including the state of Washington, have been delegated the authority to issue these permits. NPDES permits issued by Washington State permit writers are joint NPDES/State permits issued under both State and Federal laws.

pH--The pH of a liquid measures its acidity or alkalinity. It is the negative logarithm of the hydrogen ion concentration. A pH of 7.0 is defined as neutral, and large variations above or below this value are considered harmful to most aquatic life.

Peak Hour Design Flow (PHDF)--The largest volume of flow anticipated to occur during a one-hour period, expressed as a daily or hourly average.

Peak Instantaneous Design Flow (PIDF)--The maximum anticipated instantaneous flow.

Quantitation Level (QL)--The smallest detectable concentration of analyte greater than the Detection Limit (DL) where the accuracy (precision &bias) achieves the objectives of the intended purpose. This may also be called Minimum Level or Reporting Level.

Reasonable Potential--A reasonable potential to cause a water quality violation, or loss of sensitive and/or important habitat.

Responsible Corporate Officer--A president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or have gross annual sales or expenditures exceeding $25 million (in second quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures (40 CFR 122.22).

Technology-based Effluent Limit--A permit limit that is based on the ability of a treatment method to reduce the pollutant.

Total Suspended Solids (TSS)--Total suspended solids is the particulate material in an effluent. Large quantities of TSS discharged to receiving waters may result in solids accumulation. Apart from any toxic effects attributable to substances leached out by water, suspended solids may kill fish, shellfish, and other aquatic organisms by causing abrasive injuries and by clogging the gills and respiratory passages of various aquatic fauna. Indirectly, suspended solids can screen out light and can promote and maintain the development of noxious conditions through oxygen depletion.

Solid waste--All putrescible and non-putrescible solid and semisolid wastes including, but not limited to, garbage, rubbish, ashes, industrial wastes, swill, sewage sludge, demolition and construction wastes, abandoned vehicles or parts thereof, contaminated soils and contaminated dredged material, and recyclable materials.

State Waters--Lakes, rivers, ponds, streams, inland waters, underground waters, salt waters, and all other surface waters and watercourses within the jurisdiction of the state of Washington.

Stormwater--That portion of precipitation that does not naturally percolate into the ground or evaporate, but flows via overland flow, interflow, pipes, and other features of a storm water drainage system into a defined surface water body, or a constructed infiltration facility.

Upset--An exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limits because of factors beyond the reasonable control of the facility. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, lack of preventative maintenance, or careless or improper operation.

Water Quality-based Effluent Limit--A limit on the concentration of an effluent parameter that is intended to prevent the concentration of that parameter from exceeding its water quality criterion after it is discharged into receiving waters.

APPENDIX C--TECHNICAL CALCULATIONS

Several of the Excel® spreadsheet tools used to evaluate a discharger's ability to meet Washington State water quality standards can be found on Ecology's homepage at:
http://www.ecy.wa.gov/programs/eap/pwspread/pwspread.html.

Dept. of Ecology

Section: %

DMR Violation/Warning Summary Report

Printed: 25 MAY 2010

From: 01-JUL-05 To: 25-MAY-10

Facility Name	Date	Permit ID	Montr	Viol?	Parameter	Type	Units	Value	Qualifier Code	Design Code	MinLimit	MaxLimit	Staff Name
TRANSALTA CENTRALIA GENERATION LLC	10/01/06	WA0001546E	001	Y	CHLORINE, TOTAL RESIDUAL	AVG	MG/L	.65		F		.2	AZIZ MAHAR
	11/01/06	WA0001546E	001	Y	CHLORINE, TOTAL RESIDUAL	AVG	MG/L	.26		F		.2	
	10/01/06	WA0001546E	001	Y	CHLORINE, TOTAL RESIDUAL	MXD	MG/L	.71		F		.2	
	11/01/06	WA0001546E	001	Y	CHLORINE, TOTAL RESIDUAL	MXD	MG/L	.87		F		.2	
	08/01/05	WA0001546E	002	Y	BOD, 5-DAY (20 DEG. C)	AVG	MG/L	35	8	F		30	
	10/01/05	WA0001546E	002	Y	BOD, 5-DAY (20 DEG. C)	AVG	MG/L	32		F		30	
	08/01/06	WA0001546E	002	Y	BOD, 5-DAY (20 DEG. C)	AVG	MG/L	78.3		F		30	
	06/01/09	WA0001546E	002	Y	BOD, 5-DAY (20 DEG. C)	AVG	MG/L	46		F		30	
	08/01/06	WA0001546E	002	Y	BOD, 5-DAY (20 DEG. C)	MXD	MG/L	140		F		45	
	06/01/09	WA0001546E	002	Y	BOD, 5-DAY (20 DEG. C)	MXD	MG/L	49		F		45	
	02/01/07	WA0001546E	002	Y	CHLORINE, TOTAL RESIDUAL	MXD	MG/L	3.5		F		2	
	12/01/05	WA0001546E	81E	Y	CADMIUM, TOTAL (AS CD)	MAX	MG/L	.012		F		.01	
	09/01/05	WA0001546E	81E	Y	MANGANESE, TOTAL (AS MN)	MAX	MG/L	1.1		F		.05	
	12/01/05	WA0001546E	81E	Y	MANGANESE, TOTAL (AS MN)	MAX	MG/L	1.3		F		.05	
	09/01/05	WA0001546E	81E	Y	NITROGEN, TOTAL (AS N)	MAX	MG/L	17.7		F		10	
	01/01/06	WA0001546E	AFT	Y	CARBONATE ION (AS CO3)	MAX	MG/L		E	F			
	04/01/07	WA0001546E	AFT	Y	COLIFORM, TOTAL	MAX	#/100 ML	320	8	F		1	
	09/01/05	WA0001546E	AFT	Y	MANGANESE, TOTAL (AS MN)	MAX	MG/L	.65		F			
	12/01/05	WA0001546E	AFT	Y	MANGANESE, TOTAL (AS MN)	MAX	MG/L	.69		F			
	04/01/07	WA0001546E	AFT	Y	NITROGEN, TOTAL (AS N)	MAX	MG/L	12.5	F	F		10	
	10/01/07	WA0001546E	AFT	Y	NITROGEN, TOTAL (AS N)	MAX	MG/L	15		F		10	

QLF	QLF Description
A	GENERAL PERMIT EXCEPTION
B	BELOW DETECT LIMIT / NO DETECT
C	NO DISCHARGE
D	LOST SAMPLE
E	ANALYSIS NOT CONDUCTED
1	WRONG FLOW
2	OPERATIONS SHUTDOWN
3	LOW LEVEL PROCESSING
4	LAGOON PROCESSING
5	FROZEN CONDITIONS
6	MONITORING IS CONDITIONAL/NOT REQ THIS MP
7	DMR RECEIVED, PRODUCTION OR FLOW RELATED
8	OTHER
Q	EQUIPMENT FAILURE
S	DATA NOT SUMMARIZED
W	WAIVER
T	TOO NUMEROUS TO COUNT
F	LESS THAN
L	EMPTY (SAMPLE LOCATION)
X	ESTIMATED
9	TRACE
I	COLOR INDICATOR
R	IRRIGATION SEASON ONLY
P	PARAMETER NOT REQUIRED
G	INCORRECT SAMPLING FREQUENCY-VIOLATION
J	FLOODING
Z	EXPLANATION OF EXCEEDANCE PROVIDED

VIOL?: Y = YES, W = Warning -Approaching design limit

Limit Type: D = Design, I = Interim, F = Final

Dept. of Ecology

Section: %

DMR Violation/Warning Summary Report

Printed: 25 MAY 2010

From: 01-JUL-05 To: 25-MAY-10

Facility Name	Date	Permit ID	Montr	Viol?	Parameter	Type	Units	Value	Qualifier Code	Design Code	MinLimit	MaxLimit	Staff Name

QLF	QLF Description
H	GREATER THAN
K	INCORRECT ANALYSIS
N	DMR NOT SUBMITTED
M	GREATER THAN AND A VIOLATION
V	LAB ERROR
10	INCORRECT FLOW MEASUREMENT CALIBRATION
11	THERE WAS NO QUALIFYING STORM EVENT
12	CONSISTENT ATTAINMENT OF BENCHMARK
13	INACTIVE/UNSTAFFED SITE
14	HARDSHIP FEE REDUCTION EXPECTION
15	OPTIONAL (GROUNDWATER DISCHARGE)
16	NO RESULT SUBMITTED
GA	INCORRECT SAMPLING FREQUENCY-WARNING
17	BELOW QUANTITATION LEVEL
?	UNVERIFIED
B?	BELOW DETECT LIMIT/NO DETECT - UNVERIFIED
F?	LESS THAN - UNVERIFIED
G?	INCORRECT SAMPLING FREQUENCY-VIOLATION/UNVER
H?	GREATER THAN - UNVERIFIED
M?	GREATER THAN AND A VIOLATION - UNVERIFIED
N?	DMR NOT SUBMITTED - UNVERIFIED
P?	PARAMETER NOT REQUIRED - UNVERIFIED
X?	ESTIMATED - UNVERIFIED
11	THERE WAS NO QUALIFYING STORM EVENT - UNVERIF
12	CONSISTENT ATTAINMENT OF BENCHMARK - UNVERIFI
13	INACTIVE/UNSTAFFED SITE - UNVERIFIED
14	HARDSHIP FEE REDUCTION EXPECTION - UNVERIFIED
15	OPTIONAL (GROUNDWATER DISCHARGE) - UNVERIFIED
U2	MISREPRESENTED OR NO VALUES SUBMITTED ON DMR
20	INSPECTION REPORT IS NOT INCLUDED
U1	UNSIGNED OR NO SIGNATURE AUTHORITY
U3	MULTIPLE SITES ON ONE DMR
U4	DATE ISSUES
U5	DISCHARGE POINT ISSUES
U6	UNSAFE SAMPLING CONDITIONS
U7	VALUES SUBMITTED IN RANGES OR AVERAGES
U8	DATA SUBMITTED ON UNAPPROVED FORM
U9	SAMPLE MISHANDLED
1A	FLOW NOT REPORTED
18	INACTIVE CONSTRUCTION
19	MINUS
21	REPORT DISAPPROVED/INADEQUATE

Table 2- Priority Pollutant Laboratory Report Submitted on April 13, 2010

Matrix	Date Sampled	Date Received	Date Analyzed	Method	Compound	Result	Qualifiers	Units	MDL	PQL
Water	11/20/2008	11/20/2008	11/20/2008	EPA 150.1	pH	8.02		pH Units	NA	NA
Water	11/20/2008	11/20/2008	12/1/2008	EPA 1664-A	Oil and Grease	2	U	mg/L	1.84	2
Water	11/20/2008	11/20/2008	11/26/2008	EPA 200.7	Boron	2000		µg/L	40	150
Water	11/20/2008	11/20/2008	11/26/2008	EPA 200.7	Tin	50	U	µg/L	32	50
Water	11/20/2008	11/20/2008	11/26/2008	EPA 200.7	Titanium	10	U	µg/L	4.9	10
Water	**11/20/2008**	**11/20/2008**	**11/21/2008**	**EPA 200.8**	**Aluminum**	**210**		**µg/L**	**0.17**	**0.82**
Water	**11/20/2008**	**11/20/2008**	**11/21/2008**	**EPA 200.8**	**Antimony**	**2**		**µg/L**	**0.07**	**0.21**
Water	**11/20/2008**	**11/20/2008**	**11/21/2008**	**EPA 200.8**	**Arsenic**	**5**		**µg/L**	**0.08**	**0.24**
Water	11/20/2008	11/20/2008	11/21/2008	EPA 200.8	Barium	180		µg/L	0.05	0.15
Water	11/20/2008	11/20/2008	11/21/2008	EPA 200.8	Beryllium	0.15	U	µg/L	0.05	0.15
Water	11/20/2008	11/20/2008	11/21/2008	EPA 200.8	Cadmium	0.18	U	µg/L	0.06	0.18
Water	**11/20/2008**	**11/20/2008**	**11/21/2008**	**EPA 200.8**	**Chromium**	**7**		**µg/L**	**0.07**	**0.2**
Water	11/20/2008	11/20/2008	11/21/2008	EPA 200.8	Cobalt	0.13		µg/L	0.04	0.11
Water	**11/20/2008**	**11/20/2008**	**11/21/2008**	**EPA 200.8**	**Copper**	**2**		**µg/L**	**0.06**	**0.18**
Water	11/20/2008	11/20/2008	11/21/2008	EPA 200.8	Iron	1	U	µg/L	5.6	28
Water	11/20/2008	11/20/2008	11/21/2008	EPA 200.8	Lead	0.22		µg/L	0.06	0.17
Water	11/20/2008	11/20/2008	11/21/2008	EPA 200.8	Magnesium	19000		µg/L	5.9	29
Water	11/20/2008	11/20/2008	11/21/2008	EPA 200.8	Manganese	54		µg/L	0.05	0.15
Water	11/20/2008	11/20/2008	11/21/2008	EPA 200.8	Molybdenum	21		µg/L	0.66	0.29
Water	**11/20/2008**	**11/20/2008**	**11/21/2008**	**EPA 200.8**	**Nickel**	**1**		**µg/L**	**0.05**	**0.14**
Water	**11/20/2008**	**11/20/2008**	**11/21/2008**	**EPA 200.8**	**Selenium**	**3**		**µg/L**	**0.13**	**0.39**
Water	11/20/2008	11/20/2008	11/21/2008	EPA 200.8	Silver	0.22	U	µg/L	0.08	0.22
Water	11/20/2008	11/20/2008	11/21/2008	EPA 200.8	Thallium	0.28	U	µg/L	0.06	0.28
Water	**11/20/2008**	**11/20/2008**	**11/21/2008**	**EPA 200.8**	**Zinc**	**1**		**µg/L**	**0.11**	**0.33**
Water	**11/20/2008**	**11/20/2008**	**11/25/2008**	**EPA 350.3**	**Ammonia**	**0.2**	**U**	**mg/L-N**	**0.08**	**0.20**
Water	11/20/2008	11/20/2008	12/3/2008	EPA 375.4	Sulfate	440		mg/L	0.98	5.0
Water	11/20/2008	11/20/2008	11/24/2008	EPA 420.1	Total Phenolics	0.01	U	mg/L	0.006	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	4,4'-DDD	0.01	U	µg/L	8E-04	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	4,4'-DDE	0.01	U	µg/L	0.002	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	4,4'-DDT	0.01	U	µg/L	0.002	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Aldrin	0.01	U	µg/L	0.002	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	alpha-BHC	0.01	U	µg/L	0.001	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Alpha-Chlordane	0.01	U	ug/L	0.001	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	beta-BHC	0.01	U	µg/L	0.002	0.01
Water	11/20/2008	11/20/2008	12/1/2008	EPA 608	Decachlorobiphenyl	110		%	N/A	N/A

Matrix	Date Sampled	Date Received	Date Analyzed	Method	Compound	Result	Qualifiers	Units	MDL	PQL
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	delta-BHC	0.01	U	µg/L	8E-04	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Dieldrin	0.01	U	µg/L	0.002	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Endosulfan I	0.01	U	µg/L	0.001	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Endosulfan II	0.01	U	µg/L	9E-04	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Endosulfan Sulfate	0.01	U	µg/L	0.002	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Endrin	0.01	U	µg/L	0.001	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Endrin Aldehyde	0.01	U	µg/L	0.002	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Endrin Ketone	0.01	U	µg/L	0.008	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	gamma-BHC (Lindane)	0.01	U	µg/L	0.001	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	gama-Chlordane	0.01	U	µg/L	0.001	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Heptachlor	0.01	U	µg/L	0.007	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Heptachlor Epoxide	0.01	U	µg/L	0.002	0.01
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Methoxychlor	0.01	U	µg/L	0.006	0.01
Water	11/20/2008	11/20/2008	12/1/2008	EPA 608	PCB	0.1	U	µg/L	0.012	0.1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Tetrachloro-M-Xylene	99		%	N/A	N/A
Water	11/20/2008	11/20/2008	11/26/2008	EPA 608	Toxaphene	1	U	µg/L	0.11	1.0
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	1,1,1-Trichloroethane	1	U	µg/L	0.26	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	1,1,2,2-Tetrachloroethane	1	U	µg/L	0.15	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	1,1,2-Trichloroethane	1	U	µg/L	0.19	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	1,1-Dichloroethane	1	U	µg/L	0.20	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	1,1-Dichloroethylene	1	U	µg/L	0.39	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	1,2-Dichloroethane	1	U	µg/L	0.15	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	1,2-Dichloroethane-d4	104		%	N/A	N/A
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	1,2-Dichloropropane	1	U	µg/L	0.31	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	2-Chloroethylvinyl Ether	10	U	µg/L	0.72	10
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	4-Bromofluorobenzene	110		%	N/A	N/A
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Acrolein	10	U	µg/L	5.92	10
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Acrylonitrile	10	U	µg/L	0.65	10
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Benzene	1	U	µg/L	0.32	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Bis-chloromethyl-ether	1	U	µg/L	0.72	1

Matrix	Date Sampled	Date Received	Date Analyzed	Method	Compound	Result	Qualifiers	Units	MDL	PQL
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Bromoform	1	U	µg/L	0.16	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Carbon Tetrachloride	1	U	µg/L	0.08	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Chlorobenzene	1	U	µg/L	0.17	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Chlorodibromomethane	1	U	µg/L	0.17	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Chloroethane	1	U	µg/L	0.5	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Chloroform	1	U	µg/L	0.11	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	cis-1,3-Dichloropropene	1	U	µg/L	0.24	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Dibromofluoromethane	85		%	N/A	N/A
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Dichlorobromomethane	1	U	µg/L	0.20	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Dichlorodifluoromethane	1	U	µg/L	0.20	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Ethylbenzene	1	U	µg/L	0.20	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Methyl Bromide	1	U	µg/L	0.29	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Methyl Chloride	1	U	µg/L	0.29	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Methylene chloride	1	U	µg/L	1.32	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Tetrachloroethylene	1	U	µg/L	0.38	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Toluene	1	U	µg/L	0.26	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Toluene-d8	116		%	N/A	N/A
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	trans-1,2-Dichloroethylene	1	U	µg/L	0.28	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	trans-1,3-Dichloropropene	1	U	µg/L	0.15	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Trichloroethylene	1	U	µg/L	0.22	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Trichlorofluoromethane	1	U	µg/L	0.16	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 624	Vinyl chloride	1	U	µg/L	0.11	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	1,2,4-Trichlorobenzene	2.5	U	µg/L	0.27	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	1,2-Dichlorobenzene	2.5	U	µg/L	0.19	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	1,3-Dichlorobenzene	2.5	U	µg/L	0.18	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	1,4-Dichlorobenzene	2.5	U	µg/L	0.24	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	2,4,6-Tribromophenol	112		%	N/A	N/A
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	2,4,6-Trichlorophenol	2.5	U	µg/L	0.32	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	2,4-Dichlorophenol	2.5	U	µg/L	0.41	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	2,4-Dimethylphenol	2.5	U	µg/L	0.43	2.5

Matrix	Date Sampled	Date Received	Date Analyzed	Method	Compound	Result	Qualifiers	Units	MDL	PQL
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	2,4-Dinitrophenol	10	U	µg/L	0.69	10
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	2,4-Dinitrotoluene	2.5	U	µg/L	0.35	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	2,6-Dinitrotoluene	2.5	U	µg/L	0.37	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	2-Chloronaphthalene	2.5	U	µg/L	0.14	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	2-Chlorophenol	2.5	U	µg/L	0.26	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	2-Fluorobiphenyl	71		%	N/A	N/A
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	2-Fluorophenol	79		%	N/A	N/A
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	2-Nitrophenol	2.5	U	µg/L	0.38	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	3,3-Dichlorobenzidine	20	U	µg/L	11.2	20
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	3,4-Benzofluoranthene	1	U	µg/L	1.00	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	4,6-Dinitro-o-Cresol	10	U	µg/L	0.66	10
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	4-Bromophenyl-phenylether	2.5	U	µg/L	0.25	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	4-Chlorophenyl-phenylether	2.5	U	µg/L	0.29	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	4-Nitrophenol	2.5	U	µg/L	0.9	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Acenaphthene	1	U	µg/L	0.21	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Acenaphthylene	1	U	µg/L	0.25	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Anthracene	1	U	µg/L	0.21	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Azobenzene	2.5	U	µg/L	0.24	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Benzidine	20	U	µg/L	0.38	20
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Benzo(a)Anthracene	1	U	µg/L	0.15	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Benzo(a)Pyrene	1	U	µg/L	0.53	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Benzo(ghi)Perylene	1	U	µg/L	0.49	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Benzo(k)Fluoranthene	1	U	µg/L	0.76	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	bis(2-Chloroethoxy)Methane	2.5	U	µg/L	0.24	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Bis(2-Chloroethyl)Ether	2.5	U	µg/L	0.21	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	bis(2-chloroisopropyl)Ether	2.5	U	µg/L	0.23	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	bis(2-Ethylhexyl)Phthalate	2.5	U	µg/L	0.33	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Butylbenzylphthalate	2.5	U	µg/L	0.50	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Chrysene	1	U	µg/L	0.24	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Dibenz(a,h)Anthracene	1	U	µg/L	0.56	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Diethylphthalate	2.5	U	µg/L	0.19	2.5

Matrix	Date Sampled	Date Received	Date Analyzed	Method	Compound	Result	Qualifiers	Units	MDL	PQL
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Dimethyl Phthalate	2.5	U	µg/L	0.19	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Di-n-Butylphthalate	2.5	U	µg/L	0.22	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Di-n-Octyl Phthalate	2.5	U	µg/L	1.12	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Fluoranthene	1	U	µg/L	0.46	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Fluorene	1	U	µg/L	0.33	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Hexachlorobenzene	2.5	U	µg/L	0.13	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Hexachlorobutadiene	2.5	U	µg/L	0.24	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Hexachlorocyclopentadiene	2.5	U	µg/L	0.77	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Hexachloroethane	2.5	U	µg/L	0.27	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Indeno(1,2,3-cd)Pyrene	1	U	µg/L	0.56	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Isophorone	2.5	U	µg/L	0.25	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Naphthalene	1	U	µg/L	0.12	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Nitrobenzene	2.5	U	µg/L	0.28	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Nitrobenzene-d5	73		%	N/A	N/A
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	N-nitrosodimethylamine	2.5	U	µg/L	0.83	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	N-Nitroso-Di-n-Propylamine	2.5	U	µg/L	0.30	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	N-Nitrosodiphenylamine	2.5	U	µg/L	1.60	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	P-Chloro-m-Cresol	2.5	U	µg/L	0.43	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Pentachlorophenol	10	U	µg/L	0.28	10
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Phenanthrene	1	U	µg/L	0.22	1
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Phenol	2.5	U	µg/L	0.28	2.5
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Phenol-d6	80		%	N/A	N/A
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	p-Terphenyl-d14	94		%	N/A	N/A
Water	11/20/2008	11/20/2008	11/26/2008	EPA 625	Pyrene	1	U	µg/L	0.29	1
Water	11/20/2008	11/20/2008	12/2/2008	SM 2120B	Color	43		Color Units	5.8	15
Water	11/20/2008	11/20/2008	11/25/2008	SM 2540-D	Total Suspended Solids	4		mg/L	0.49	0.50
Water	11/20/2008	11/20/2008	11/25/2008	SM 4500-F C	Fluoride	2.1		mg/L	0.025	0.20
Water	11/20/2008	11/20/2008	11/26/2008	SM 5210 B	BOD	5.2		mg/L	N/A	2.0
Water	11/20/2008	11/20/2008	11/26/2008	SM 5220-D	COD	2	U	mg/L	0.31	2.0
Water	11/20/2008	11/20/2008	11/21/2008	SM 9222D	Fecal Coliform by MF	40		CFU/100 ml	N/A	1
Water	11/20/2008	11/20/2008	11/20/2008	SM4500-Cl-G	Total Residual Chlorine	0.04		mg/L	0.017	0.04
Water	11/20/2008	11/20/2008	11/21/2008	SM4500CN-E	Total Cyanide	0.01	U	mg/L	0.004	0.01

Matrix	Date Sampled	Date Received	Date Analyzed	Method	Compound	Result	Qualifiers	Units	MDL	PQL
Water	**11/20/2008**	**11/20/2008**	**11/21/2008**	**SM4500NO 2B**	**Nitrite**	**0.04**		**mg/L-N**	**0.004**	**0.01**
Water	**11/20/2008**	**11/20/2008**	**11/25/2008**	**SM4500NO 3E**	**Nitrate**	**4.8**		**mg/L-N**	**0.24**	**0.5**
Water	11/20/2008	11/20/2008	11/26/2008	SM4500-P E	Total Phosphorus	0.2		mg/L	0.066	0.2
Water	11/20/2008	11/20/2008	12/2/2008	SM4500-S2-E	Sulfide	0.5	U	mg/L	0.18	0.5
Water	11/20/2008	11/20/2008	12/3/2008	SM4500-SO3-B	Sulfite	2	U	mg/L	1.2	2.0
Water	11/20/2008	11/20/2008	12/4/2008	SM5310 B	Total Organic Carbon	6		mg/L	0.60	2.5
Water	11/20/2008	11/20/2008	11/24/2008	SM5540 C	Surfactants (MBAS)	0.04		mg/L	0.026	0.03
Water	11/20/2008	11/20/2008	12/3/2008	Summation	Total Organic Nitrogen as N	0.5	U	mg/L-N	0.24	0.5
Water	11/20/2008	11/20/2008	11/21/2008	SW846 3010	Digestion	d			N/A	N/A
Water	11/20/2008	11/20/2008	11/25/2008	EPA 350.3	Ammonia	3.4		mg/L-N	0.08	0.2
Water	11/20/2008	11/20/2008	11/26/2008	SM 5210 B	BOD	3.3		mg/L	N/A	2.0
Water	11/20/2008	11/20/2008	11/26/2008	SM 5220-D	COD	2	U	mg/L	0.31	2.0
Water	11/20/2008	11/20/2008	12/4/2008	SM5310 B	Total Organic Carbon	5		mg/L	0.60	2.5

Table 3- Reasonable Potential to exceed the water quality standards

				State Water Quality Standard		Max concentration at edge of …		
	Metal Criteria Translator as decimal	Metal Criteria Translator as decimal	Ambient Conc. (metals as dissolved)	Acute	Chronic	Acute Mixing Zone	Chronic Mixing Zone	LIMIT REQ'D
Parameter	Acute	Chronic	µg/L	µg/L	µg/L	µg/L	µg/L	
Total Chlorine Residual			0	19	11	137.99	151.79	YES
Arsenic	1	1	0	360	190	30.99	30.99	NO
Chromium	0.99	0.99	0	15	10	43.08	43.08	YES
Selenium	1	1	0	20	5	43.08	43.08	YES

Table 3- Reasonable Potential to exceed the water quality standards -continued

	Effluent percentile value		Max effluent conc. measured	Coeff of Variation		# of samples	Multiplier	Acute Dil'n Factor	Chronic Dil'n Factor
Parameter		Pn	µg/L	CV	s	n		1	1
Total chlorine residual	0.95	0.224	40	0.6	0.55	2	3.79	1	1
Arsenic	0.95	0.05	5	0.6	0.55	1	6.2	1	1
Chromium	0.95	0.05	7	0.6	0.55	1	6.2	1	1
Selenium	0.95	0.05	3	0.6	0.55	1	6.2	1	1

APPENDIX D--RESPONSE TO COMMENTS